

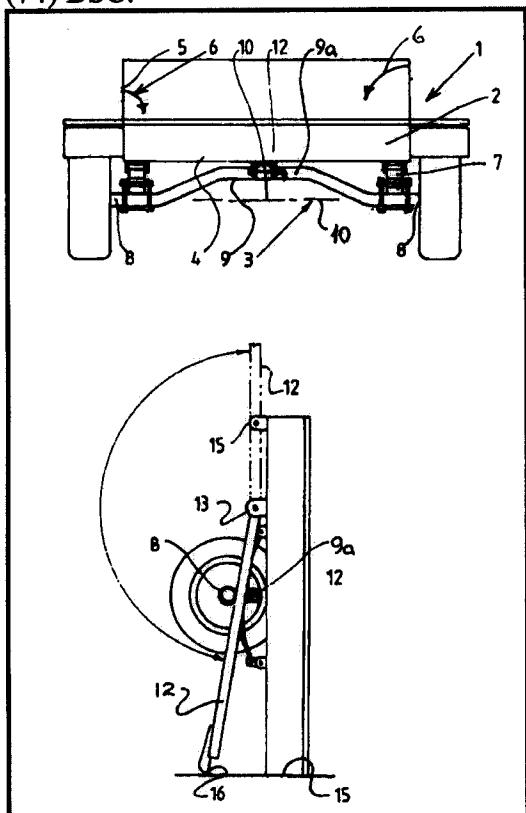
(11) 205656. (22) 20 Sep 1983. (23) 3 Dec 1984.

(54) TRAILER: DRAWBAR SWINGABLE INTO UPWARDLY BOWED AXLE SPACE FOR STORAGE.

(51) B62D63/06.

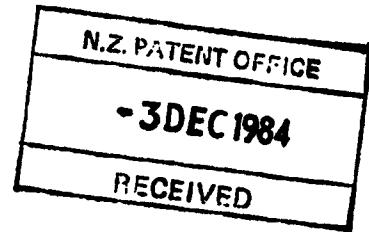
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(57) The trailer wheel axle 8,9 is cranked. Drawbar 12 is pivoted at 13 so that it may be released from its towing position and swung into the storage position of fig.3 where it lies inside the wheel rotation axis.

- 1 -

NEW ZEALANDPATENTS ACT 1953COMPLETE SPECIFICATION

AFTER PROVISIONAL: No.205656
DATED: 20 September 1983

IMPROVEMENTS IN AND RELATING TO TRAILERS

I, WARREN MARK DANCE a New Zealand Citizen of 9
Cheriton Road, Howick, Auckland, New Zealand do hereby
declare the invention for which we pray that a patent
may be granted to us and the method by which it is to be
performed, to be particularly described in and by the
following statement:

This invention relates to improvements in trailers and more particularly to improvements in trailers suitable for convenient storage and/or compact transportation.

There exists a significant problem in providing trailers which are sufficiently robust for common usage and yet are able to be readily stored when not in use, preferably by tipping out of a substantially horizontal plane of normal usage, into a substantially vertical plane so that the trailer can be stored up against a wall or in some other position where it takes up little storage space and may be conveniently stored at the rear of a carport, garage or within a building. Furthermore, there exists a further problem in providing a trailer which is able to be readily collapsed for transportation in containers, on pallets and the like with a number of similar trailers and to reduce as much as possible wasted storage space.

Attempts have been made in the past to provide trailers to meet such design parameters and desirable factors, however they have been relatively complex in construction and therefore are expensive to build, have had undesirable construction techniques, and have been fragile in use.

It is an object of this invention to come some way in overcoming the abovementioned problems or at least provide the public with a useful choice.

Other objects of this invention will become apparent from the following description.

According to one aspect of this invention there is provided a trailer including a frame, a suspension assembly and a draw bar, said suspension assembly including a beam portion positioned substantially transversely of said trailer and mounting substantially aligned wheel axles, at least a mid portion of said beam positioned out of register with said aligned axles extending toward the frame of said trailer, the draw bar collapsible from a forwardly extending position toward a rearwardly extending position with a portion of the draw bar passing at least into the axis of said aligned axles.

Other aspects of this invention will become apparent from the following description. Modifications are envisaged and may be incorporated without departing from the scope or spirit of the invention.

The preferred form of the invention will now be described with reference to the accompanying drawings wherein.

Figure 1: is a diagrammatic front view of a trailer formed according to the invention showing the trailer in an operative condition

Figure 2: shows the trailer of figure 1 in side elevation and additionally shows the sequential positioning of

the trailer in a storage position and collapsing of the draw bar

With reference to the drawings, the preferred form of trailer as generally indicated by arrow 1 is preferably formed in suitable robust materials for example steel and the like however, the invention is not limited to these materials and alternative materials can be used.

The trailer preferably includes a frame portion 2 which mounts a suspension assembly as generally indicated by arrow 3 adjacent a lower portion 4 or underside thereof. Trailer side walls 5 are provided adjacent a periphery thereof extending outwardly so as to define a luggage trailer.

Whilst the invention is described with reference to a luggage trailer, the invention is not limited to this unit and it is envisaged that alternative trailer styles (such as boat trailers and the like) can incorporate the apparatus of this invention.

In this preferred form the trailer side walls 5 are substantially collapsible as is shown by arrows 6 of figure 1 so as to enable collapsing of the side walls 5 from the position as is shown by broken lines of figure 2 to the position shown by solid lines so as to reduce the thickness or height of the trailer frame when required for storage.

The suspension assembly of this invention is preferably provided by means of leaf springs 7 although

the invention is not limited to this construction. The leaf springs 7 are of course provided of a rating to suit the conditions of use of the trailer and further, to provide a relatively simple and robust mounting for the suspension assembly 3.

The suspension assembly 3 includes axles 8 aligned with one another, positioned at outer end portions of a transverse beam 9 of the suspension assembly 3 and by this invention, the beam 9 is preferably provided with its mid portion 9A substantially formed upwardly, toward the trailer frame, out of register with an axis 10 of the aligned axles 8 in the manner of a "gull mag" so called. In this preferred form of the invention, the mid portion is reduced or substantially flattened or otherwise reduced in thickness, normally on a horizontal plane (according to normal conditions of use of the trailer) so as to provide a clearance between adjacent surfaces of the trailer frame and the beam 9 and a maximum degree of out of register deformation of the springs 7.

With reference to figure 2, a draw bar 12 is provided to extend normally forwardly of the trailer frame 2 and yet be collapsible to a rearward extending position as shown in the collapsed trailer of figure 2.

Preferably the draw bar 12 is pivotably mounted on a T-bar 14 mounted within a pivotable mounting on the frame 2, spaces substantially rearwardly from a frontal portion of the trailer frame 2. A locating and securing

means 13 is provided adjacent a frontal portion where the draw bar 12 passes through and a locking pin is provided to be removably engageable through aligning apertures in the draw bar and locating and securing means 13 to hold the trailer draw bar in a forwardly extending position.

Collapsing of the trailer 1 is effected as is shown by figure 2 by tilting the trailer rearwardly so that its rear face 15 contacts a ground or other supporting surface and thereafter, the trailer is tipped upwardly using the drawbar 12 in its forwardly extending position as a lever arm and once in a stable position, the pin is removed from the locating and securing portion 13 and the draw bar 12 is folded toward a rearwardly extending position upon the pivot 13 so that the draw bar 12 extends rearwardly. Preferably, the drawbar 12 is provided of such a length that an outer end 16 thereof contacts the ground surface and provides a stabilising stay for the trailer in the stored position.

It will be appreciated that in its rearwardly extended position, the drawbar collapses into a position whereby at least a portion of the draw bar extends into and preferably through the axis 10 of the axles 8 and thus it will be seen that out of register formation of the beam 9 facilitates compact collapsing of the trailer in the stored position.

The relatively simple construction of the trailer

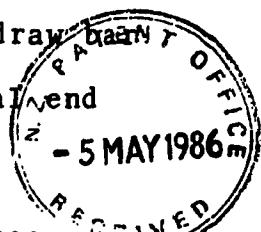
- 7 -

assembly enables the trailer to be substantially robust in nature yet economical to produce.

Thus by this invention there is provided an improved construction of a trailer suitable for collapsed storage.

WHAT I CLAIM IS:

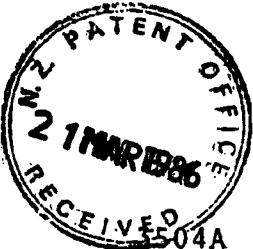
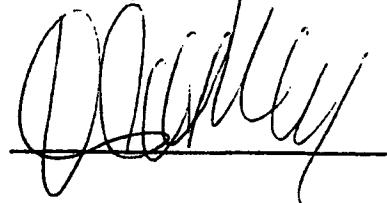
1. A trailer including a frame, a suspension assembly and a draw bar; said suspension assembly including a beam portion floatable relative to said frame on suspension means, said suspension means positioned between said beam and said frame, said beam oriented transversely of said trailer and mounting at least a pair of aligned wheel axles adjacent end portions thereof, at least a mid portion of said beam offset out of register with the axis of said axles to extend toward the frame of said trailer, the draw bar movable relative to remaining portions of the trailer from a forwardly extending position toward a rearwardly extending position with a portion of the draw bar passing at least into the axis of said aligned axles adjacent the beam offset portion.
2. Apparatus as claimed in claim 1 wherein the draw bar is pivotable adjacent a butt end thereof relative to said frame.
3. Apparatus as claimed in claim 1 or claim 2 wherein at least a mid portion of said beam is reduced in thickness.
4. Apparatus as claimed in any one of the preceding claims wherein the draw bar is provided of a length to position a distal portion thereof substantially aligned with a rear face of said trailer frame when moved toward the rearwardly extending position.
5. Apparatus as claimed in claim 4 wherein said draw bar is positionable rearwardly extending with the distal end



thereof resting on a supporting surface with said trailer frame standing on said rear face, said draw bar when so positioned forming a stay for said trailer.

6. Apparatus as claimed in any one of the preceding claims wherein said draw bar is pivotally mounted to said frame inwardly of ends of said trailer frame.
7. Apparatus as claimed in any one of the preceding claims wherein an aligning portion is provided to align and hold said draw bar in position in relation to said frame when in the forwardly extending position.
8. Apparatus as hereinbefore described with reference to the accompanying drawings.

WARREN MARK DANCE
By His Attorneys
BALDWIN, SON & CAREY



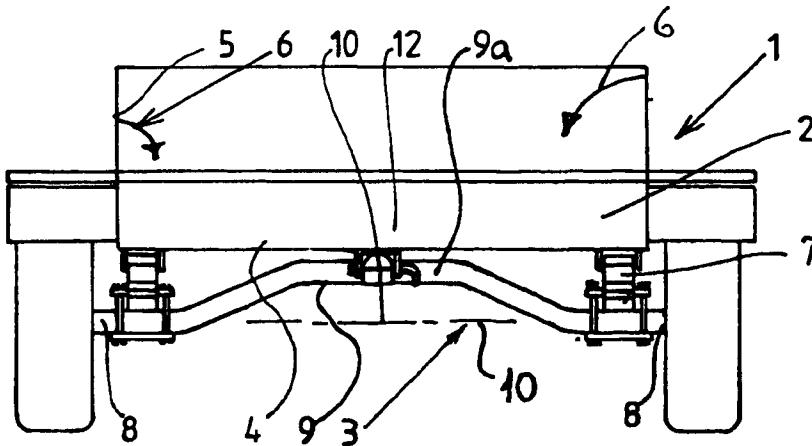


FIG. 1.

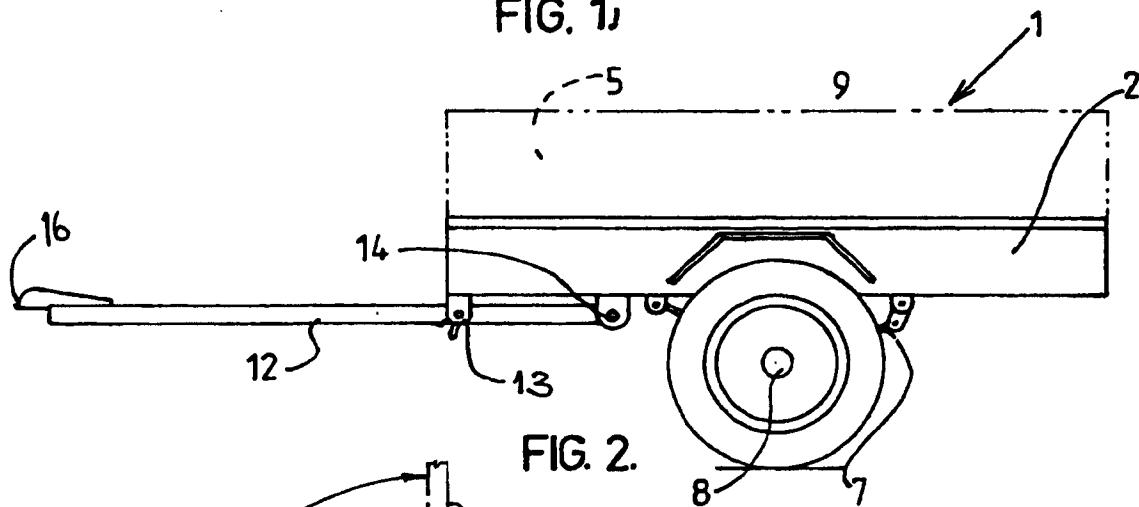


FIG. 2.

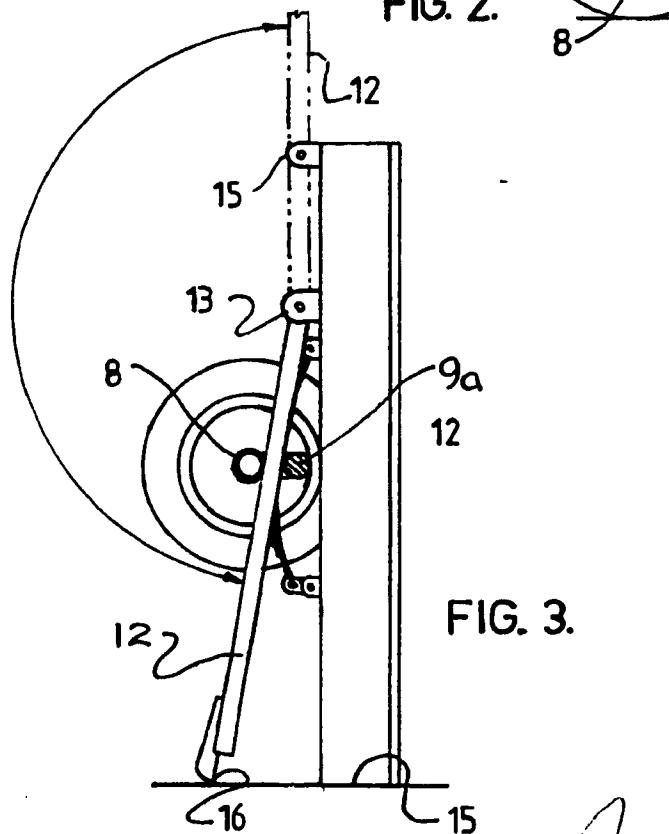


FIG. 3.

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END